

# MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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## INTRODUCTION.

The MONTHLY WEATHER REVIEW for May, 1901, is based on reports from about 3,100 stations furnished by employees and voluntary observers, classified as follows: regular stations of the Weather Bureau, 159; West Indian service stations, 13; special river stations, 132; special rainfall stations, 48; voluntary observers of the Weather Bureau, 2,562; Army post hospital reports, 18; United States Life-Saving Service, 9; Southern Pacific Railway Company, 96; Hawaiian Government Survey, 200; Canadian Meteorological Service, 32; Jamaica Weather Office, 160; Mexican Telegraph Service, 20; Mexican voluntary stations, 7; Mexican Telegraph Company, 3; Costa Rica Service, 7. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; Commander Chapman C. Todd, Hydrographer, United States Navy; H. Pittier, Director of the Physico-Geographic Institute, San Jose, Costa Rica; Captain François S. Chaves,

Director of the Meteorological Observatory, Ponta Delgada, St. Michaels, Azores, and W. M. Shaw, Esq., Secretary, Meteorological Office, London; Rev. Josef Algué, S. J., Director, Philippine Weather Service.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is  $157^{\circ} 30'$ , or  $10^{\text{h}} 30^{\text{m}}$  west of Greenwich. The Costa Rican standard of time is that of San Jose,  $0^{\text{h}} 36^{\text{m}} 13^{\text{s}}$  slower than seventy-fifth meridian time, corresponding to  $5^{\text{h}} 36^{\text{m}}$  west of Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local standard is mentioned.

Barometric pressures, whether "station pressures" or "sea-level pressures," are now always reduced to standard gravity, so that they express pressure in a standard system of absolute measures.

## FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

Forecasts of the direction and force of the wind and the state of the weather for the first three days out for the use of steamers bound east from United States ports were regularly made during the month and published on the weather maps issued at Washington, Baltimore, Philadelphia, New York, and Boston, and on a number of dates these forecasts included a notice that conditions favorable for fog were indicated along the western half of the transatlantic steamer routes. On the 3d Lloyds, London, England, was advised by cable that a storm of marked strength was crossing Newfoundland moving eastward.

The most important disturbance of the month in the United States belonged to a type of storms which apparently originate on the eastern slope of the Rocky Mountains, and move thence eastward or northeastward over the Great Lakes, often increasing in intensity, and causing dangerous east to northeast shifting to north and northwest gales. On May 22 the disturbance referred to assumed definite form on the eastern Rocky Mountain slope and moved almost due east over the southern part of the Lake region during the succeeding two

days, attended on the 24th by severe gales on Lakes Michigan, Huron, Erie, and Ontario. In this instance the strength of the gales appeared to be due to the rapid development of an area of high barometer over the Lake Superior region rather than to an increase in intensity of the low barometer disturbance. Although ample warning was given to lake ports of the dangerous character of the winds that would attend this storm several small sailing craft were wrecked, and the steamer *Baltimore* ran ashore and was lost off Au Sable, Lake Huron.

Frost occurred on the 4th in the upper Ohio Valley and western New York, and on the 5th in the Rocky Mountain districts as far south as northern New Mexico. On the 6th and 7th frost was reported in the middle-western and north-western States, and on the 8th from the middle Rocky Mountain region over Minnesota and upper Michigan. From the 10th to the 14th frost conditions extended from the north-eastern slope of the Rocky Mountains over the Northwestern States and the upper Mississippi and Ohio valleys, and on the 15th and 16th frost occurred generally in the Lake region. On the 18th and 19th frost was noted in the north Pacific